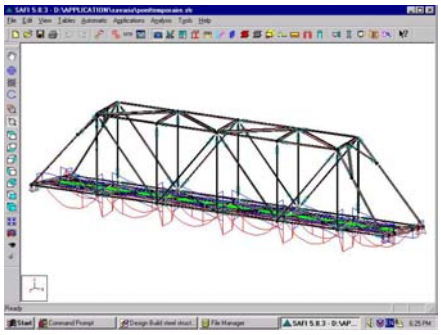
Current Bridge & Structures Projects

Push-Over Analysis for Seismic Design of Bridges



Push-over analysis is a relatively new method of determining the seismic vulnerability of bridges. This project is determining what available software is the best to perform this analysis and how this software can be smoothly implemented in the Bridge and Structure office.

Repair of Earthquake Damaged Bridges

A major earthquake could result in significant damage to the infrastructure including many major bridge structures. This project is developing designs for temporary support systems for bridges. Included in these designs are lists of locally available materials to build these support systems

Assessment and Seismic Retrofit of Outrigger Joints

The vulnerability of outrigger joints has been demonstrated in recent earthquakes both in California and Washington. This project will investigate the performance or our existing outrigger joints and determine the best practical method to retrofit those joints to improve there performance in an earthquake

Reliability-Based Design of Seismic Retrofits for Bridges

Retrofit designs for seismically vulnerable bridges are well know. However, what is not know is how to apply these retrofit designs in the most efficient manner given the vulnerability of the structure, its social importance, and the probability of a given event. This project will use a probabilistic approach to assess the reliability of various retrofit strategies and target set performance levels for design.

Floating Bridge Anchor Cable Assessment

Floating bridges, like the Evergreen Point Bridge, are anchored in place with heavy cables attached to heavy concrete anchors on the lake bottom. The length of these cables varies depending upon their location with short cables near shore and longer cables in the middle. This project is measuring the forces on these cables to determine if the shorter cables are being over stressed during storm events and to determine if sealinks installed on these shorter cables are effective.

Behavior and Retrofit of Knee Joints in Bridges

This project will investigate the behavior of outrigger knee joints and methods for retrofitting them to improve performance. The focus will be the knee joints of the SR 99 Spokane Street overcrossing with the goal to develop and evaluate practical methods of strengthening knee joints in that bridge, although it is expected that the results will be applicable to other bridges as well.